TITLE OF INVENTION

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Electrodynamic profiling of genomic response in the cell.

A biological cell is the model and uses Chemistry to follow the flow of electronic energy, ionic flux and physics in explaining cell and electromagnetism. Presented are novel understandings of bioelectromagnetic for cellular and physical system evaluation.

In the cellular processes of life DNA has the ability to be: superconducting, conductor, capacitor, transistor, resistor, insulator by means of confirmational (liquid crystal) transformations due to ionic flux, hydration and p.H. and known thermodynamic properties and unknown electrodyanmical properties. This allows the abilities of DNA to oscillate at frequencies(ex.bead on string) vibrational forces which can signal for modification and transformation within the cell. Moreover these vibrational forces synchronize chemical and physical pathways signaling within groups of cell retaliating information of the environmental conditions. Harmonizing (large groups of cells) function and needs within the targeted area (magntoelastic properties)

CROSS - REFERENCE TO RELATED APPLICATIONS

A provisional patent was filed on 12-31-02.
Application number 60/437,621
See attached (doc 1)

STATEMENT REGARDING FEDERALLY SPONSED RESEARH OR DEVELOPMENT

Not applicable.

REFERENCE TO SEQUENCE LISTING

This reference is enclosed below.

Energy Doc 7. enclosed and submitted provisionally

Battery section pg 12 Ordered energy of genomic information.
Battery section pg 12 Method of evaluationg electrodynamics

BACKGROUND OF THE INVENTION

The background for the invention presents a classical theory and methodology of biological and physics evaluation of energy usage related to electromagnetic electronic and magnetic interaction with in a biological system - the cell.

FIELD OF INVENTION

The invention uses the physics of an electromagnetic field which displays mechanistic controls a cell and reproduction biological cell.

Although more today mainstream science crossing over the disciples of the hard sciences is more acceptable, specialization of intricate study prevails and whole systems (systems biology) are disregarded. Moreover, the physicist does not fully understand biological system, as the chemist and the biologist trained in all disciples' follows only the laws of them. The biological cell ultimately has been viewed in thermodynamics for the last century; however, electrodynamic interactions drive the electronic nature of DNA and the cell.

Many questions remain in cell biology today. These can be addressed as we offer answers to unexplained biological metabolic pathways as genomic function controlling cellular response. The dynamical process of life in simplest form is a cell. Most basic to life is cell reproduction: as one cell divides into two cells. The process of cellular reproduction the controls and mechanism by which this vital process takes place remains poorly understood. To address this fundamental question which remains unanswered viewed in broad basic trinity scientific understand yields unparalleled explanation of cell function to the mechanistic controls. Basic scientific understanding in a trinity of the hard sciences: biology, chemistry and physics leads to explanation.

A model is presented within a biological system the cell and the relationship of charge transport (ionic flux) explained though chemistry, which displays the physics of magnetic field....Bioelectromagnetic.
The center of the cell is the nucleus, basis of chemistry is ionic flux, and physics shows electronic energy as a magnetic field.

During metaphase all cells stop as chromosome align in the middle the cell. To impinge the resemblance of the cell to a magnetic field. Is mitosis at metaphase a magnetic field? (The model is called 3M mitosis metaphase magnetic). Could a magnetic field direct cell activity?

Basic scientific understanding in a trinity of the hard sciences: biology, chemistry and physics leads to explanation. Any studies not solely based on thermodynamic which show nuclear function. We do not disregard thermodynamics yet the energy electronic is a lower requirement shown by Goodman with heat shock protein being downstream from ERME.

Theorizing on the appearance of a cell at metaphase the chromosomes appear held within a magnetic field, I propose that DNA creates a magnetic field controls cell division. Physics uses the term electrostatics to explain magnetic behavior. Electrostatics interactions serve in resolving the physical explanation of cell division.

A cell functions are electronic. The pumps of the plasma membrane selectively uptake extra cellular elemental ions (Na/k . The balance of ion flux is regulated by DNA and Atp production or usage. The cell

is an electronic structure, in cell regulation of ionic current though the plasma membrane are determined by the structure of DNA within the cell.

The cell is in constant ionic flux except at meta phase and the mechanics of cell diviison are that of electromagnetic field A magnetic field controls the cell. the Magnetic field is produced by the intristic structure of the DNA molecule with in the cell. DNA structurally has four confirmed states and the range of capacitance is from non conducting to super conducting.

The cell during reproduction as birefringement of chromatin during prophase displays an electronic and mechanical relationship though out metaphase, teleophase, anaphase. The physics of this process can be explained by electrostatics(2), yet the process and understanding is static. The process of mitotic division is dynamic and an electrodynamic view (completes and explains the movement of a magnetic field.(3) The middle of cellular reproduction metaphase is a magnetic field.

Ionic currents or "asymmetries of ionic flux"(4)though the plasma membrane H2O,(Na, K, Ca2+,Mg2+) act in response to ordered energy and upon intracellular concentrations vary (flux) the nuclear (DNA) architecture during the cell cycle or "embryo patterning."(4) Base pairing, AT, GC banding and functions of the electronic cell are sequence dependent.

Variable p.H. intracellular conditions (ATP/cyclins, ADP/cdk, AMP/cdk2) are controlled by the electrodynamics of the DNA structure with regards to the conductance and function of the cell.

The Bioelectromagnetic field is produced before replication intracellularly by the downward spiral of phospholations and the upward composition of DNA. The highest ordered state of DNA is chromatin at metaphase that displays the bioelectromagnetic mechanism.

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Understanding DNA during replication/transcription by a balance of charge, DNA/RNAs the symmetry of energy is a magnetic force.

Biology studies life and the simplest unit is a cell. The cell in structure and function is complex. The biochemical pathways of cell signaling change the structure of the cell. Structural transitions within the cell do change the functioning. The order of structural functioning transitions changes the way in which the cell directs energy. The currency of energy in biological system is adenosine triphosphate (ATP). The cell regulates the energy usage in a highly ordered behavior. ATP energy is coupled with four elemental ions which can make or use energy in a cell. The elemental ions react to ATP cleaving of a phosphate Transitions of ATP are ATP > ADP >AMP. The elemental ions react to compensate this energy transfer. These ions specifically react with DNA. to elucidate the Order and complexity of cell function by looking toward the usage of the genomic information.

"The Incredible Life and Times of Biological Cells" by Paul Nurse, states that "ordered signaling patterns can emerge from relatively simple wiring diagrams and rules of operation"(1) The cell during reproduction as birefringement of chromatin during prophase displays an electronic and mechanical relationship though out metaphase, teleophase, anaphase. The physics of this process can be explained by electrostatics(2), yet the process and understanding is static. The process of mitotic division is dynamic and an electrodynamic view (completes and explains the movement of a magnetic field.(3) The middle of cellular reproduction metaphase is a magnetic field.

The process of a cell reproduction called mitosis/meiosis can be explained and shown as the formation and deformation of a magnetic field and considering a magnetic field as "a rule for operation". Viewing the cell as an electronic structure, simply viewed as a battery, and the controls being bioelectromagnetic. The capacitances of the cell (battery) electronic properties are based nuclear structural confirmations of the cellular DNA.

The intrinsic structures of cellular DNA orchestrates biochemical synthesis using electrochemical , (electronic: ionic transduction across the plasma membrane and based in a tensgrity model(7), chemical: inducing cytosolic pH. changes), the symmetry of the (electron) energy and current densities are controlled and displayed by the electrodynamics and conformational transitions of nuclear architecture DNA.(double helix, bead on string, lampbrush, chromatin).

Ionic currents or "asymmetries of ionic flux"(4)though the plasma membrane H2O,(Na, K, Ca2+,Mg2+) act in response to ordered energy and upon intracellular concentrations vary (flux) the nuclear (DNA) architecture during the cell cycle or "embryo patterning."(4) Base pairing, AT, GC banding and functions of the electronic cell are sequence dependent.

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Description of Prior Art.

Descriptions of prior art are difficult as the field or the trinity of science has not fully come together. The trinity of biology, chemistry and physics have not diverged and culminated to fundamental scientific understanding. Biology and the biotechnological uprising of the last twenty years created great promise yet yielding few results. Biologists many times are employed as chemist and chemistry remain largely cook book type interaction. Modern Physics deals quantum and classical debates which remain theoretic. Present I am not aware of a system or methodology which accurate relate these sciences directly.

Modern scientific study is extremely focused on one particular aspect of a system, looking at overall systems as simple as a single cell from a single science appears unoriginal as the intricate view has been explored, yet remains quite original. Basic understanding and a new prospective is given at looking a single cell from a multidisciplinary approach.

Highlighted below are the best and most accurate researcher looking into mechanism which could possibly be considered prior art.

Bioelectromagnetics Society (BEMS) being the most closely associated with the mainstream science in technological understanding. The group largely focuses on emf interactions Do cell phone cause cancer? Do powerlines cause cancer? BEMS fails to understand bioelectromagnetic interactions as described here.

The model present model helps explain electromagnetic field interaction during cell cycle (5) by Whealtey et al call for a plausible hypothesis.
J. Barton of University of California as she present controls of electron transfer in DNA, understanding electron transfer is critical is the cell system.

Fritz Popp presents a "cavity resonator" which is a good model, yet measures photon emission. Biophotons are measuring photons herein we examine electronic usage.

Dr. B.E.W Nordenstrom, present what is considered a more encompassing picture of "biologically closed electrical circuits" which is excellent and highly accurate. The major misunderstanding is that the circuits are also biologically and electrically open also.

Martin Blank of Columbia University and Rebecca Goodman have done some of the best and most far reaching work in this field. They have directly studying electromagnetic field on biological system having shown electron transfer rate being increased, competing electromagnetic forces with chemical forces and "electromagnetic response elements in gene". The later which is used to show the mechanism presented here.

Michael Levin of Harvard recently has shown 'motor protein control in ion flux as an early step in embryonic left – right asymmetery". I had proposed the mechanism of interaction some months before Dr. Levins findings. It certainly helped solidify the mechanism I presented.

Merrill Garnett of New York works on anti cancer drugs and has a great understanding of "electrogenic" DNA electron transfer as well as one of the best understandings of physics in biological system.

Tom Beardon, Cherinne.org. presents the electrodynamics of electromagnetic field interactions. Dr Beardon presents that electromagnetic interaction have real no system used to explain electrodynamic interactions which are measurable. Interactions are considered in a vacuum (not a cell) and source charges (DNA), yet the cell system and DNA can be used as measurable entities.

Continued Background

Although traditionally biologist have viewed the simplest biological system, the cell, based in chemical and thermodynamic understanding, however to understand genomic function Electrodynamics deal with the electronic nature of the cell. (8)

Within a cell the structural transition of DNA mediates functional changes in the permitivity of the cells' plasma membranes ionic channels resulting in cytsolic pH. change. DNA intracellularlly orchestrates electrochemical gradients functioning to direct bioelectromagentic fields mechanistically controlling the cell.

Using biology as the system: A single cell metabolic pathway, chemistry as the central science acid/base reactions to show ionic (electric) flux and physics study of electromotive force in relation to magnetic fields and electrical interactions, gives a picture that helps answer many questions. The trinities of these sciences and there relationship have been understudied.

"The search for fundamental relationships between charge transport phenomena and magnetic exchange coupling provides a strong driving force for our research. We apply the tools of physical-organic chemistry to gain insight into the structural and electronic factors."

"there are not many individuals looking at these relationships." Dr. Natia Frank of University of Washington

Within the cell does DNA function as a "magnetostrictive and magnetolelastic " device? Giving DNA "sensory capabilities including liquid, temperature, viscosity, density, sound, force, movement pressure, vibration, light chemical analyte consetrations. The sensory can be measured physically or remotely.(energy doc 7 intro pg2.) (Flock)

The intrinsic structures of cellular DNA orchestrates biochemical synthesis using electrochemical ,(electronic: ionic transduction across the plasma membrane and based in a tensgrity model(7), chemical: inducing cystolic pH. changes), the symmetry of the (electron) energy and current densities are controlled and displayed by the electrodynamics and conformational transitions of nuclear architecture DNA.(double helix, bead on string, lampbrush, chromatin). DNA intracellularly has four well know confirmations: double helix, bead on string, lampbrush, chromatin. These DNA confirmation have unique liquid crystal confirmations (l.c) to measure field strength of bioelectromagnetic field. These confirmations change though out the cell cycle. The dynamics of the change can be associated and fixed with the cell cycle designation, G1, S, G2, M. Therefore G1> double helix, S> bead on string,, G2> lampbrush , M>, chromatin.

The "cyclic operating systems" of the cell cycle controls are a bioelectromagnetic field established by nuclear DNA transition in response to: Extra cellular ion concentration, plasma membrane, cytosolic pH.

A theory which brings the biological system a cell, though chemical explanation (acid/ base reactions, Hydrogen ion flux), electron (ic) movement revealing a physics (al) relationship

The process of mitosis/meiosis can be explained and shown as the formation and deformation of a magnetic field and considering a magnetic field as "a rule for operation". Viewing the cell as an electronic structure, simply as a battery, and the controls being bioelectromagnetic. The capacitance of the cell (battery) electronic properties are based nuclear structural confirmations of the cellular DNA.

Explaining simple and logical scientific solution giving ability to view the biological cell in a novel way as having and electronic structure and nature. The theory explains the mechanistic function of the genome, though a basic unexplored understanding, which brings together biology, chemistry and physics. "It sounds very interesting" Robert Langer MIT.

"The Incredible Life and Times of Biological Cells" by Paul Nurse, states that "ordered signaling patterns can emerge from relatively simple wiring diagrams and rules of operation"(1)

The simple diagram pointed to is metaphase and the magnetic field. These show the rules of operation. This links bioelectronic magnetic phenomena to cell division(10)

I suggest that cellular reproduction controls are magnetic. During metaphase we can see the final formation of the electrically induced magnetic field and the deformation of the field pulling chromosomes to respective inversely proportionality to respective poles the forces of the new cells. The process of mitosis/meiosis can be explained and shown as the formation and deformation of a magnetic field and considering a magnetic field as "a rule for operation".

Cellular reproduction controls are the formation and breakdown of an internal magnetic field (bioelectromagnetic field) and can be represented by a poynting vector. Simply depicting a poynting vector the mutually orthogonal component is a poynting flux (magnetic componet), intimately associated is an electrical charge. Electrical activity mediated thought the plasma membrane (Na/K) pump creating internal energy in the cystol Atp>Adp+ Pi, switched cdk/cyclin transcriptional DNA (GC AT) "nuclear polar territories"(55 Energy doc 7) stabilize the electrical energy

Within a cell the structural transition of DNA mediates functional changes in the permitivity of the cells' plasma membranes ionic channels resulting in cytsolic pH. change. DNA intracellularlly orchestrates electrochemical gradients functioning to direct bioelectromagentic fields mechanistically controlling the cell. Viewing the cell as an electronic structure, simply as a battery, with controls being bioelectromagnetic. The capacitance of the cell (battery) electronic properties is based nuclear structural confirmations of the cellular DNA. (L.C. Confirmation). The highest ordered state of DNA is chromatin, the 3M model displays the mechanism.

DNA Liquid Crystals

(an applied low-frequency AC electric field, its polarization response, in combination with the motion of the surrounding c of nuclear architecture DNA.(double helix, bead on string, lampbrush, chromatin).

Ionic currents or "asymmetries of ionic flux"(4)though the plasma membrane H2O,(Na, K, Ca2+,Mg2+) act in response to ordered energy and upon intracelluar concentrations vary (flux) the nuclear (DNA) architecture during the cell cycle or "embryo patterning."(4) Base pairing, AT, GC banding and functions of the electronic cell are sequence dependent.

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Understanding DNA during replication/transcription by a balance of charge, DNA/RNAs the symmetry of energy is a magnetic force. In respects to physics "energy flux is intimately connected with linear momentum density and this is connected with angular momentum"(energy doc 7 theory page 4)

These DNA confirmations have unique liquid crystal confirmations (l.c) to measure field strength of bioelectromagnetic field. These can be applied to what I term as structural functional positional information(sfpi) that is displayed thought out the cell cycle and give rise to signaling pathways, environmental needs, within functional groups of cells (ex muscle, liver, nervous).

Jim Valles has disrupted mitotic apparatus with emf (6)

The controls of the cell system are electronic. The magnetic component of the electrical system appears minor yet is the controlling dynamic. The intrinsic structure of DNA in function and structure directs electrochemical energies to electromagnetic field (Bioelectromagnetic) . The spatial temporal characteristics of cellular DNA liquid crystal confirmation regulate cellular activity.

Electrogenetics describes the energy requirements, energy exchanges, and electronic circuits, which allow gene reactions to occur in the living state. Merrill Garnett which whom I have extensive correspondance with term Electrogenetics is the basis for designing medicines that can short circuit the electrical charges in cancer cells and produce their selective electrocution.

Expirement Creating and performing simple experiment one must see (charge mediation) macroscopic change in a cellular environment (microscopic). A single live cell mediating electrical charge. This was accomplished by growing yeast cells (eucararyotic) and staining them with pH. Indicators. By microscopic analysis pH. Indicators became incorporated into live cells. Visible structures included the extracellular matrix (halo), plasma membrane, cystol and nucleus.

Cells appear colored in respect to structures mentioned. This demonstrates pH. (H+, OH-) gradients or ionic current within one live cell. Cells were in all phase of the cell cycle via visual observation. The color changes ranged from pH 3.0-6.8 though the cells and are corresponded with their phase of cell cycle. The common change in pH were noted within the cell structure were large ionic flux noted in: extracellular matrix (halo), plasma membrane, cystol and nucleus, nuclear membrane. Average pH for all phases of cell cycle(G1,S, G2,M) were:.extracellular matrix (halo) =6.7pH, plasma membrane =4.9pH., cystol=pH3.4 nuclear membrane =pH4.7and nucleus=5.0. I do not believe that ionic current has been shown though out a whole cells previous to this and noted structures functioning in such electrically dynamic way.

Further the cells from varying cell cycle stages showed change by the addition of 1m. KCl. All cells appeared to be driven into G2 phase. The sodium/potassium pump was driven by the addition of K. the ionic flux induced by the addition of potassium shows change in intercellular ionic flux.

Levin

The experimental data being generated in Levins lab, takes major thoughts such as embryos (one cell) and is mechanistically showing the function of the flow of "asymmetries of ionic flux" the energy and control of right left asymmetry within genomic information. This work of bioelectrical controls in embryos displays the mechanism of control.

Many studies indicate that cell function maybe electric with a few cite here. (4,5,6,7,8, 12,15)

The theory is novel. Current models and theory do not address many or any issues. The control of mitosis and the cell cycle are mostly explained by "mechanisms poorly understood.".

Could a magnetic field direct cell activity? Jim Valles has disrupted mitotic apparatus with emf (6)

Nordenström presents an electrophysiological view of acupuncture. (15)Role of capacitative and closed circuit currents or "biologically closed circuits" ;however, the circuits are not present as controlled by DNA function and are not viewed as open circuits.cytosolic environment

Experiment predictions such as Levin Na/K asymmetries, were in fact predictable before the study had issued. Bioelectromagnetic control

Levin provides strong experimental evidence making the theory acceptable. A final draft of the theory was written last August/September and Levins work was issued sometime in October. Theoretically, proposing that during early in the cell cycle G1, a double helix confirmation would dominate nuclear structure, electronically function as a solenoid with response from AT banding to GC banding regions. The ionic flux via plasma memebrane into the cell would be sodium, potassium (ordered energy) and the driving energetic cytosolic environment ATP-cyclin.

Shows Goodman and Blank work regulations of genes response to emf.(12)

Genomic function

It is obvious that genomes' function can be shown in what I term electrodynamic profiling

As the expirement shows electrical activity though the cell, It can be used as a method of evaluating cell systems and the genomic function. Provide vector analysis of cellular pathways. Create electronic signatures of biological systems. Development and improve drug interaction on a cellular level. Evaluate electromagnetic fields and there effects on cells creating new SAR standards. Translation and functionality of known and unknown genomic sequences for drug discovery. Allow computational analysis of electronic function of DNA. Help in neurological pathways and assessment.

Showing usage and commercial applicabilty. 9 12 03 Posting by Norvatis.

Epigenetics group within the Functional Genomics division. Projects will reflect our interest in identifying key regulators of chromatin structure involved in disease initiation and/or progression. The epigenetics group consists of four highly interactive labs housed at the new home of Novartis Institutes for BioMedical Research, Inc. in Cambridge, MA and is focused on developing a therapeutic program based upon epigenetic mechanisms.

The effects of electrical, magnetic, induced field do change the field (bioelectromagnetic) strengths of the DNA nuclear architecture, liquid crystal properties. Which are predicated by the bioelectromagnetic theory.

Showing the mechanistic control of the biological cell as physical measurable entity of electric, magnetic, ionic currents can without difficulty be converted to protonic, harmonic(sound), photonic (light), vibration, rotational measurable energies. Realizing that electrodynamics of cell systems is largely understudied and the model that are present may not be one hundred percent accurate, yet they are as accurate as and more expansive than studies today.

The sheer enormity of information and scientific understanding required compiling and explaining such mechanisms has been solely complied.

"Having reached the milestone of sequencing entire genomes, fundamental issues in understanding human biology are how genomes are organized in living cells and how gene expression programs are regulated. My laboratory seeks to uncover how nuclear architecture and genome topology affect genome function in living cells. The importance of nuclear architecture in controlled genome expression is evident from the critical role nuclear reorganization plays in stem cell differentiation, carcinogenesis and cloning by nuclear transfer. To gain insight into nuclear function in vivo, we are applying a multifaceted approach to study the biophysical properties of proteins in living cells, the spatial organization of genome within the cell nucleus and the application of imaging methods to study pre-mRNA processing events.

To understand the nuclear environment in which genomes are expressed, we are probing the biophysical properties of proteins and chromatin using in vivo imaging

Our cell biological studies of genomes and the cell nucleus are aimed at uncovering fundamental concepts of genome organization and nuclear function in vivo and they are providing opportunities for applying these principles to human disease diagnosis, therapeutics and bioengineering. "

Tom Misteli, Ph.D. Principal Investigator (14)

Fundamental concepts of genome organization and nuclear function in vivo are shown as bioelectromagnetic. That bioelectrical activity plays no role and bioelectromagnetic field does exist. Levines' Studies on embryos show the logical sequence of usage of genome information(4). Thus any studies disproving the Katp activity, right left patterning, electromagnetic control in morphogenisis, ionic conduction, etc.

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4)http://www.drmichaellevin.org

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13)Ben Farby, Harvard Magnetic Twisting Cytometry Lab (private discussion)

14)http://rex.nci.nih.gov/RESEARCH/basic/lrbge/cbge.html
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16) L. L. Sohn,*□HYPERLINK \l "FN151"□□†□ O. A. Saleh,* G. R. Facer,* A. J. Beavis,‡ R. S. Allan,‡ and D. A. Notterman‡□HYPERLINK \l "FN151"□□†□Capacitance cytometry: Measuring biological cells one by one Departents of * Physics and ‡ Molecular Biology, Princeton University, Princeton, NJ 08544 Proc. Natl. Acad. Sci. USA. 2000 September 26; 97 (20): 10687-10690

17)M.V. Sataric and J.A. Tuszynski: "The Impact of Regulatory Proteins on Nonlinear Dynamics of DNA," submitted to Physical Review E.Web http://mitacs-

BRIEF SUMMARY OF THE INVENTION

Bioelectromagnetic responses contains broad practical application,. The invention uses a novel method of cellular evaluation for research and development, commercial and industrial application the study of energy within the cell. Evaluating a cell regarding the cells' DNA electronically functioning with in cellular environment and constraints the electrodynamics of electromagnetic fields interaction are shown as bioelectromagnetic mechanisms . The cell nucleus or DNA defining the electromagnetic field and electrodynamics of cell genomic function to it own reproduction. Use of physical applications include : electronics, bioinformatics, chip design, computer design on nanoscale level 'nanotechnology" and usage and "biotechnological" also for use in stem cell (controlling cell differentiation), diseases, cancer research (controlling cell differentiation) and even as a clinical diagnostic enabler with immediate application focus and novel uses in electroporation, radiotherapy, drug discovery

DETAILED DESCRIPTIONOF THE INVENTION

Certainly application by mean of academic acceptance would yield the greatest results as an academic teach tool. For biologist to explain cellular reproduction, for the physicist to have known "source charges" in measurement of electromagnetic field interactions, as the chemist to show the ionic, p.H. changes

These inventions are based on modeling of a biological cell as an electronic structure. The novel model presents the cell as an electrodynamic entity there are two base designations the cell and the DNA. These cells and the genomic information are to include both individually and as one functional entity. The capacitance of a cell transitions electronic energy usage relative to genomic binding of base pairs. The models technology leads to electronic interactions and regulation of information contained within the composition of base pairs of cellular DNA electronic usage with the nuclear region. Changes or dynamics of the electrical activity within a cell are mediated by structural transitions of DNA in the nucleus with the nuclear region. The electronic conductance of genomic regions is fluxed by the permitivity of the plasma membrane. The plasma membrane a known as electrogenic affinity for ionic flux(Na/K pump etc.) changes due to the electronic structural transition within the nuclear DNA Within a cell(s) the nucleus functions to direct biochemical synthesis, DNA mediates the electric and magnetic valves though structural transition in response to the introduction of ions and other factors such as signaling (inter and extra cellular) ,functional structural positional information, environmental factors. Energy systems and the transfer of energy.

That the biological cell is NOT known nor understood to be and an electronic structure.(The Cell, Albert et al. 2001, the 'bible" of academic cell text nor any known scientific study published of the electronic qualities of cell cycle control and the "battery properties of genomic information DNA as outline in energy doc 7)

A cell(s) possess functions that are electronic, therefore also magnetic. The controls of cells are regulated by nuclear electronic structure and the transitions mediated by the DNA molecule.

Within a cell the electrodynamics of DNA mediates structural transitions of itself

The description of the position and revolutionary benefits have not been accurate describe previous to this time. The technology will allow for use of these l.c. confirmations and the liquid crystal themselves for electronic and magnetic information. The information may be running of circuits. The circuits or the use of electrical or magnetic energy though these l.c. will have uses in and for standard energy usage, the production of storage of energy or information. To use the known and unknown liquid crystal formation of DNA for industrial application. The applications ranges are under investigation and not limited to microcomputing, energy usage, and energy production. To enhance known circuits, computer processors, amplification of electrical, magnetic current, and sound, radio, microwave and light(uv, visible, IR, FTIR) frequencies thought the use or incorporation of liquid crystal from structure to function. The basis will encompass simple circuit to magnetoelastic devices (energy doc ref 117.

Supercomputing

hardware and software applications based on algorithmic function (see energy doc7 technology page 5.) Based on bioelectrodynamic the algorithmic functions of DNA are known to be Hamiltonian. The (Hamiltonian) pathway are used to show the power of universal computations. The algorithm of hamiltonian paths are of the quality that the electronic properties of cell function via DNA. These include 1) the computations know were the starting point is i.e. the information of a known start pointA. 2)knows were it is going ie A>B...B>C>D>E 3) performs a vectorial analysis of the quickest route.

Algorithms based on hamilition and bioelectromagnetic qualities of DNA function. The system is not binary code 0,1 it is trinary 0,1 2 the code as in DNA is 4 as the bases is based on a 4 base code. Mimic DNA in structure and function for computational, algorithmic function. Hardware(computer technology) computers which mimic the use electronic properties of DNA within a cell to function lead to computational pathways. Soft ware applications will be based on the t,m,small nuclear (sm) r, RNA usage and interactions of the harddrive DNA. The software will mimic the production of amino acids, polypeptides, proteins, and small and large biomolecules for computational for switching pathways and computations. The switching pathways lead to hamiltionian like computations and algorithms.

The technology is based on the BEM bioelectrical activity of cell as they function relative to the electrodynamic mechanistic control of cellular DNA. The bioelectromagnetic signature of cell function is to be determined, evaluated and corrective stimulation can be administered even though we've found all those genes in the human genome (to include all biological genomes) , we cant understand the most basic simple cell yet"

The understanding of bioelectromagnetic valves and the controls are outlined in energy doc 7 and I do not believe that Venter (doc8) et al, nor any others have the basic sciencific understand of the electrodynamics of the bioelectromagnetic control of the cell as outline in energy doc 7. That bioelectromagnetic valves and cell electrodynamics existence compared with conventional energy and go beyond quantum mechanics, as quantum are basic on photonic emission energy usage: bioelectromagnetic are based on electron emission or energy usage and is novel. That photonic (photon)and neutronic (neutron) based energy usage can be explained by the electronic (electron) based energy usage of cell and DNA Dynamics as outlined.

Method of explaining effects of electromagnetic spectrum interactions with biological system using electronic/magnetic regulation of the cellcycle control. Cells respond to limited controls of bioelectromagnetic fields they create and the electrodynamics of bioelectromagnetic control.

Since the control of the cell cycle and cellular reproduction employ a bioelectromagnetic field to provide scientifically accepted biological testing on a (inter and extra) cellular and genomic level.

A)This method starts with evaluating the biological system which would have an electronic signature. The electronic signature of the biological system is evaluated in several ways. The first is the whole biological systems which identify the signature of system. Second to focus on a cellular level to asses change in the signature. Thirdly, examination of the nuclear cellular response on a DNA level including gene regulation and interaction on a cellular level. Also frequencies created within gene regions both inter cellularly and frequency which resonate to create intercellular and extra cellular signal. These would be radio type frequencies which illicit a cellular response including physical vibration though cells, tissue, and organ systems via the extracellular matrix(EMC).

B)To evaluate drug, anti-motoitics, inteterferons, oncogene-based cancer therapy, cytokines, platinum and other elements (ionic or elemental), antisense drugs, tumor suppressor enyzymes -p53,p-21 etc, antiangiogensis factors, DNA and RNA cleavage compounds on whole genomic response, cellular response, tissue and organ response relative to electrodynamic nuclear activity.

Develop and improve drugs of all disease based electrodynamics of the cellular bioelectromagnetic control and bioelectromagnetic field interaction on a cellular and genomic level.

C)To evaluate electromagnetic fields and there effects on cells. Example: Do cell phones power lines appliances, electric devices or electrical producing devices cause cancer? To some degree they must. If the controls of the cell are electronic and magnetic component controlling the cell(s). To explore the effects of electrical and magnetic field producing on a cellular and genomic level for "safety" of these devices.(See IEEE EMBS Committee on man and radiation {enclosed Document 21}) The method will test effects of RF energy on the body via cellular level of known and unknown hazards associated with RF energy exposure. The specific absorption rate (SAR) is presently *measured on the rate of energy absorption in a*

tissue. This method not only measure tissue and organ, yet cellular response both inter cellular and extra cellular relative to gene interaction and regulation. Not only the quantity of energy will be assessed yet the quality of energies which interfere with normal operation of cell and the control of cycle and reproduction. The structural positional functional information(SPFI) of genomic usage within a cells differs and would need to be examined for each tissue region relative to its location for accurate "scientific acceptable benefit".

)Energy Source:

This device is created to the specification of a single biological cell or any portion of the pathway of the electronic cell function. The device is multi functioning as a battery to dynamically or statically store charge and responds to environmental needs and condition. The conditions can be altered manually or automatically. The energy fuel can be produced by water and it elemental components(H20, H+, OH-, O2, O3) Also fueled by simple elemental ions and complex biomolecules.

To use the cell as a model of conductance, fluxing the capacitance, storing charge to illicit response or shear usage of energy. The magnetoelastic and magnetostrictive forces produced via these properties.

To explore the conductance,electostatic,electronic of DNA. (see review DOC 2)

Doc 2 express DNA MEDIATES ELECTRONIC CHARGE TRANSFER these are claims(as defined by patent law) on electronic nature and abilities of DNA and the circuit of the cell. The circuit will be mimic to use for energy production and storage.

Charge mediatation in a cell shows the functional packing of DNA by histones. (DOC 4)Core histone function electrodynamic in an ordered energy and allow charge to be mediated in a super efficent manner and molecular size becomes miniaturized to the final point of non conductive as during cellular reproduction. Flexoelectric properties of DNA intercellularly and extra cellular(DOC 6)

Intercellular

With DNA, RNA, proteins, synthetic hybrids
with RNA, proteins, histone codes.

In the cellular processes of life DNA has the ability to be: superconducting, conductor, capacitor, transistor, resistor, insulator by means of conformational (liquid crystal) transformations due to ionic flux, hydration and p.H. and known thermodynamic properties and unknown electrodynamical properties. This allows the abilities of DNA to oscillate at frequencies(ex.bead on string) vibration forces which can signal for modification and transformation within the cell. Moreover these vibration forces synchronize chemical and physical pathways signaling within groups of cell retaliating information of the environmental conditions. Harmonizing (large groups of cells) function and needs within the targeted area (magntoelastic properties)

Cellular macroarray and microarray

Translating and functionality of known and unknown genomic sequences, complete genomes of virus,plant, procaryotic and eucaryotic cell both monera, protista and animal within cell(s). Cells both natural and synthetic.

One cell monitoring function of genomic information intercellularly showing actual real time interactions of genes, and DNA sequences to determine usage and expression levels of the cell. Cellular use of gene interaction and regulation will be shown. The conditions may be modified to mimic or provide precise structural functioning positional information within an organism.

Applications of cellular macroarray include gene discovery, disease diagnosis, drug discovery, Pharmacogenomics, toxicogenomics (Shi).

Answering how and why some drugs work for some organism and not others is relative to genomic information ie DNA. DNA in every biological systems differs if it be a single base difference or millions of bases. The structural function positional information that is displayed is critical to function. Therapeutic responces to drugs, elements, vibrations, light, electromagnetic fields, electrical field, thermodynamics, force, can be accurately assessed with all genomic intact within a cell, natural or synthetic. Synthetic to include DNA (genomic) held within an electromagnetic field.

The only cell know to have electrical activity are nerve cells. Nerve cells do not reproduce at the same rate as other types of cells. Brain cells do not replicate reproduce at all.

That the electrical activity of nervous tissue most definitively gives organism the perception of the senses. That nervous system can be stimulated by electronic means is well established. To use corrective current, vibration, sound, light to stimulate corrective response. (SEE
Doc 7 Bioelectromagnetics groups home page image shows Thompson attempting to stimulate his brain) Although the folly this procedure appears humorous; nevertheless, stimulation of the brain will elevate physical, emotional and psychological abnormalities. The medical implications and treatment of physical, emotional and psychological are enormous. Described are harmonic translator and the study of cynamatics (sound and electromagnetic frequencies can show cellular response)

A machine to deliver precise frequency to the brain or neutral network directly or indirectly to correct mis frequencies within the tissue or at points applied (chakas, merdian point) to particular regions of the brain. The response to the energy should function to correct physiological, psychological abnormalities.

These are novel uses of this type of machine.

The effects of eastern and western medicine are not corrective of the symptom they merely mask the problem. Ie Patent symptom is a headache: Eastern medicine uses an acupuncture point to relieve the problem. Western prescribes an aspirin. Neither actually correct the problem merely mask the problem.

The method will tie eastern and western medicine to solve the problem both electrically and chemically. A new diagnosis technique. Evaluating meridian points (electrical conductive points) and treat the points both physically and chemically.

The cyclical operating system of cellular function is based on a (bio) electromagnetic field. Cellular control and reproduction mechanistic controls function being regulated by structural transitions of DNA. The electrodynamics of a cell transitions.

To utilize the technology based on the controls of biological cells (model) based in the understudied field of energy system of electronic and mechanistic controls of biological system based on cell studies. That biological systems use electrical and magnetic fields energy harmonize though electrodynamics and their structure of DNA and their magnetostrictive and magnetoelastic properties. The structural functional uses of inter and extra cellular conformational states of DNA and the functioning of nucleus. Certain uses and claims are herein.

Immediate clinical application can be imploded. Alteration of cell types and cell line in regards to biotechnological advancement are numerous deciphering the human genome appears to have the greatest benefit to man kind.

Proton therapy is being implored to treat cancer. The imaging of cancer tumors by CT, MRI, protonic and electronic imaging device could be greatly enhanced by these understanding and practical usages.